

ECONOMIC REVIEW OF CROP PRODUCTION

IN ZIMBABWE 1890 - 1940

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This paper is concerned with the factors influencing agricultural crop production patterns. The material covered here concerns agriculture from the period of first European settlement in the late nineteenth century until 1940. The period subsequent to 1940 will be investigated in future papers. Agriculture plays an important role in the Zimbabwean economy, despite the country's relatively poor physical resources. The agricultural industries accounted for just under 14% of gross domestic product in 1978 (Reserve Bank, p.70) and 45% of exports whilst imports of agricultural commodities accounted for only 2% of the import bill (C.S.O. Sept. 1980)<sup>1)</sup>

Modern Zimbabwe is characterised by a dualistic agricultural sector. Commercial agricultures produce 94% of marketed agricultural output in Zimbabwe and supports approximately 1.8 million people while peasant agriculture produces only an estimated 15% of total agricultural output although it supports 4.5 million people <sup>1)</sup> (C.S.O. Dec. 1980, July 1980 and October 1980). Data on agricultural production by peasant (black) farmers are almost non-existent and it is therefore impossible to trace national production trends. Data are available on areas planted and yields of crops reaped for the commercial farming areas (predominantly white owned and operated) from returns submitted by growers. It has, therefore, been necessary to trace developments separately for each sector. Unless specifically stated otherwise, the sections in this paper on individual crops refer only to production from commercial farming areas.

Zimbabwe is landlocked and stretches from about 15 to 22 degrees South latitude and from 26 to 34 degrees East longitude. 390 000 square kilometres in area, it is bounded in the north by the Zambezi river and in the south by the Limpopo. Although Zimbabwe lies within the tropics, one-fifth of the terrain is over 1200 m. above sea level and three-fifths between 600 m. and 1200 m. so that only the low-lying Zambezi and Limpopo valleys experience tropical conditions. Most of the country has a sub-tropical climate. Made up predominately of granitic, other igneous and schistose rocks, Zimbabwe has greatly varied, if not economically very rich, mineral resources (Philips, p.4). The soils are predominantly sandy with the heavier loamy and clayey soils occurring in relatively small local areas (Vincent & Thomas).

\* 1) Data used are those for 1978.

Zimbabwe has a capricious, seasonal rainfall occurring mainly between the months of November and March. Only 37% of the country receives more than the 700 mm annual average considered necessary for semi-intensive farming/ and in most parts less than a third of this area is actually arable. In the semi intensive farming systems followed in Zimbabwe, the natural growing season is confined to the rainy months and both the total rainfall and its distribution over the season are the over-riding limiting factors in agricultural production. Average annual rainfall varies from below 300 mm in the low-lying areas of the country to over 1000 mm on the central watershed. Limited areas in the Eastern Border mountains receive over 1500 mm annually. High intensities of rainfall are common - the reliability of monthly rainfall being much lower than the seasonal total. The reliability decreases in general from north to south (Vincent & Thomas p.11-12). The indigenous vegetation is savanna grassland along the central plateau with wooded savanna throughout most of the rest of the country. There is some montane forest in the Eastern Border districts. The fauna are varied and of considerable potential economic value but have been relatively unexploited. In general the topography, soils and climate of Zimbabwe are not favourable for intensive agricultural production. More than seventy-five percent of the country is subject to conditions that make dryland crop production a risky venture. The country does have significant water resources, some of which have been developed. Although these resources are scattered, their development could greatly increase agricultural output.

Zimbabwe has been divided into five broad natural regions (Vincent & Tickner) in which the dominant natural factor conditioning agricultural production is climate:

- |   |  |
|---|--|
| Natural Region I<br>613 233 ha.<br>(1,56%)      | - 1050 mm plus per annum with some precipitation in all months of the year and relatively low temperatures.                                      |
| Natural Region II<br>7 343 059 ha.<br>(18,68%)  | - 700 - 1050 mm per annum with rainfall confined to summer. It is divided into two sub-regions with the second more prone to mid-season drought. |
| Natural Region III<br>6 854 958 ha.<br>(17,43%) | - 500 - 700 mm per annum with relatively high temperatures and infrequent, heavy falls.  |
| Natural Region IV<br>13 010 036 ha.<br>(33,03%) | - 450 - 600 mm per annum and subject to seasonal droughts.   |

Natural Region V - less than 500 mm per annum. The conditions in  
10 288 547 ha. this region are only suitable for extensive  
(26,2%) cattle ranching.

The remainder, 1 220 254 ha. (3,1%) is unsuitable for any form of agricultural utilisation, being excessively broken country.

Little is known of the early history of Zimbabwe but the Zimbabwe ruins indicate the remnants of a cohesive, organised and relatively advanced society "such that a surplus was available to maintain the workmen who constructed the buildings and to feed a royal court practising an elaborate ritual" (Yudelman p.37). Archeological evidence indicates that sometime prior to 10 AD there was trade with the Orient. The first known Europeans to penetrate the area were the Portuguese in the early 16th century, who described the kingdom of Monomatapa as a fairly well-developed governmental system where gold, fruit, cattle and elephants were plentiful. The Monomatapa kingdom subsequently waned and the cohesion and social organisation of the earlier era disintegrated.

Tribal warfare, disease and depredation depopulated the area and it was to this sparsely settled region that the Ndebele, after breaking away from the Zulus, established themselves in the mid 19th century. The white missionaries, prospectors and settlers followed very shortly thereafter and by 1893 there were some 3 000 whites living in Zimbabwe.

The early settlers came in search of gold, and agriculture was a very minor settler activity prior to 1903. Although over 6 million hectares had been alienated to whites by 1899, most of this area was owned by speculative companies. When, by 1903, it became obvious that minerals were not abundant, many settlers turned to farming. Agricultural progress was slow. It took time to adapt farming methods and technology to local conditions, there was a serious lack of capital and marketing was primitive. In most instances white farmers adopted the practices of their black counterparts, using local seed and light hoe cultivation. The high cost of transport and poor availability of inputs prohibited the use of agricultural machinery and fertilizers in the early days. Although yields were low, production was profitable due to favourable prices.

#### LAND TENURE

Until the early 1890s the Ndebele occupied the highveld in the south-west of the country, an area free of tsetse fly. They were organised in village units and their farming plots, which were situated

away from their homesteads, were often cultivated by captured Shona (Punt p.15). The Shona tribes, as a result of the Ndebele raids, were decentralised with their homesteads widely scattered and usually located on or near the cultivated plots. In Mashonaland the settlers did not initially encroach on Shona settlements. These were usually located on light, sandy soils, while the settlers preferred the heavy soils of the highveld. In Matabeleland, however, the land grants to white settlers resulted in the alienation of traditional Ndebele settlements. A Land Commission was therefore established which set aside the first land reserves in the middleveld to the north and northwest of Bulawayo. The Matabeleland Order-in-Council had instructed the Commission to set aside sufficient land to allow the Ndebele to continue their agricultural and pastoral pursuits (Official Year Book I p. 203).

After the Ndebele and Shona uprisings in 1896 and 1897, a second Order-in-Council required that the charter company provide the blacks throughout the country with land sufficient for their needs. The Native Commissioners in each district determined the local distribution of land and they were influenced primarily by black settlement patterns and white land claims. Those responsible for land allocation seriously underestimated population growth and overestimated the potential for improved land use.

Until 1931, blacks were legally free to purchase land outside the reserves. The Land Apportionment Act of 1929, (implemented in 1931) however, officially segregated the country and allocated land as follows: 22,4% to Native Reserves in which land was owned communally; 7,8% was set aside for freehold purchase by blacks; 19% was designated Forest Area and Unassigned Crown Land and 50,8% was reserved for freehold purchase by whites. The Land Apportionment Act 1929 remained in effect, with some amendments, until it was replaced by the Land Tenure Act of 1969. This act designated 41,3% Tribal Trust Land (communally owned black land) and 3,8% African Purchase Area (privately owned black land). Forty percent of the land was held exclusively for purchase by whites and included all the land, cities, villages and mines located outside the tribal trust lands.

#### CROP PRODUCTION IN THE PEASANT SECTOR (2)

Traditional shifting cultivation methods by peasant farmers continued to be used for many years after the arrival of settlers.

\*(2) Peasant producers are defined as those who plant primarily for subsistence, usually farming on communally owned land, but does not exclude those who also produce some marketable surplus. Cont....

Land was not privately owned and was controlled by the tribe for the period of their habitation in any particular area. Although the ultimate authority for the allocation of land rested with the tribal leaders, there was an abundance of land and when more land was needed farmers simply expanded into adjoining areas. In the late nineteenth century, all livestock in the country belonged nominally to Lobengula but in practice most livestock were privately owned and were used, amongst other things, as both a source and symbol of wealth. The Ndebele were more pastorally inclined than the Shona but for both groups the single most important economic activity was crop production (Reid/p.97).<sup>1977</sup> Crops were grown for subsistence although in good harvest years any surplus was sometimes used to barter for iron implements, cloth and beads. There were no long term storage facilities to hold surpluses as protection against bad years and there was thus no incentive to grow more than would fulfill subsistence requirements. A wide range of crops was grown. The most important were small grains (sorghum and millets) although maize, which had first been introduced in the mid fifteenth century, was rapidly replacing these crops. In addition, rice, groundnuts, beans, pumpkins, melons, sweet potatoes, cowpeas, plantains and a sweet reed are known to have been cultivated. Diets were also supplemented with edible roots, fruits, and other indigenous flora and fauna. Some cotton, tobacco and cannabis were also grown.

Land was usually cultivated for about four years before being abandoned although this practice varied with soil fertility and region. No attempt was made to manure the land except by digging in wood ash and leaves. Abandoned plots took ten to twenty years to recover. Shifting cultivation characterized by minimum input and low output satisfied the needs of subsistence living and worked well whilst land was abundant and population density low. D.A. Robinson considered that under a system of shifting cultivation one square mile of land could support twenty persons (Weinmann 1975 p.200). White settlement brought restrictions on land availability and resulted (with the introduction of medical facilities and the cessation of inter-tribal wars) in a rapidly increasing population. The population was estimated at 470 000 in 1900 and 1 470 000 in 1941. The man-land ratio increased to a point where shifting cultivation was no longer possible. Peasant farmers effectively moved to a system of continuous cultivation based on

their traditional low-input farming practices. Such continuous cropping resulted in a rapid decline in soil fertility and widespread soil erosion: trends which were accelerated by the introduction of the plough. The animal drawn ploughs eased a major constraint on the peasant farmer, that of labour availability for land preparation, thus allowing them to extend the area cultivated. Alvord estimated that there were 50 000 ploughs in use by 1930 (Weimann 1975 p.202). The adverse effects of the plough were inappropriate tillage methods, careless land selection and the abandonment of row ridging. The evident declining yields from peasant agriculture were in part ascribed to the incorrect use of the plough (Official Year Book III).

Reliable records of peasant agricultural production and sales are unavailable but the estimates made by the Native Commissioners have been presented in graph form in Figure I. It can be seen from the graph that average output did not increase in line with area planted, indicating the trend of declining yields. The data used are unreliable but the trends indicated are supported by comments from agricultural demonstrators and native commissions of that time Punt p.61).

It was only in 1926 when E. D. Alvord was appointed Agriculturist for the Instruction of Natives that any real effort was made to encourage more effective land use by peasant farmers. In 1927 agricultural demonstrators were trained and sent into the Reserves to demonstrate improved methods. In 1933 a programme of centralisation of the cultivators commenced which involved organising them into village units where land was demarcated into arable and grazing areas.<sup>3)</sup> The principals encouraged were primarily the application of manure and compost and the introduction of crop rotation systems. Agricultural extension has only really been effective with those cultivators prepared to adopt modern techniques. Yields obtained by those with master farmer certificates were estimated by Weinrich in 1966 as 835 kgs per hectare compared with 354 kg/ha by other peasant cultivators in the same year (Weinrich p.97-116). The ordinary cultivator still uses a  
modified

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3) For a more detailed account of the progress of extension work see annual reports of E.D. Alvord from 1926-1950 first as Agriculturist for Instruction of Natives and then as Director of Native Agriculture.

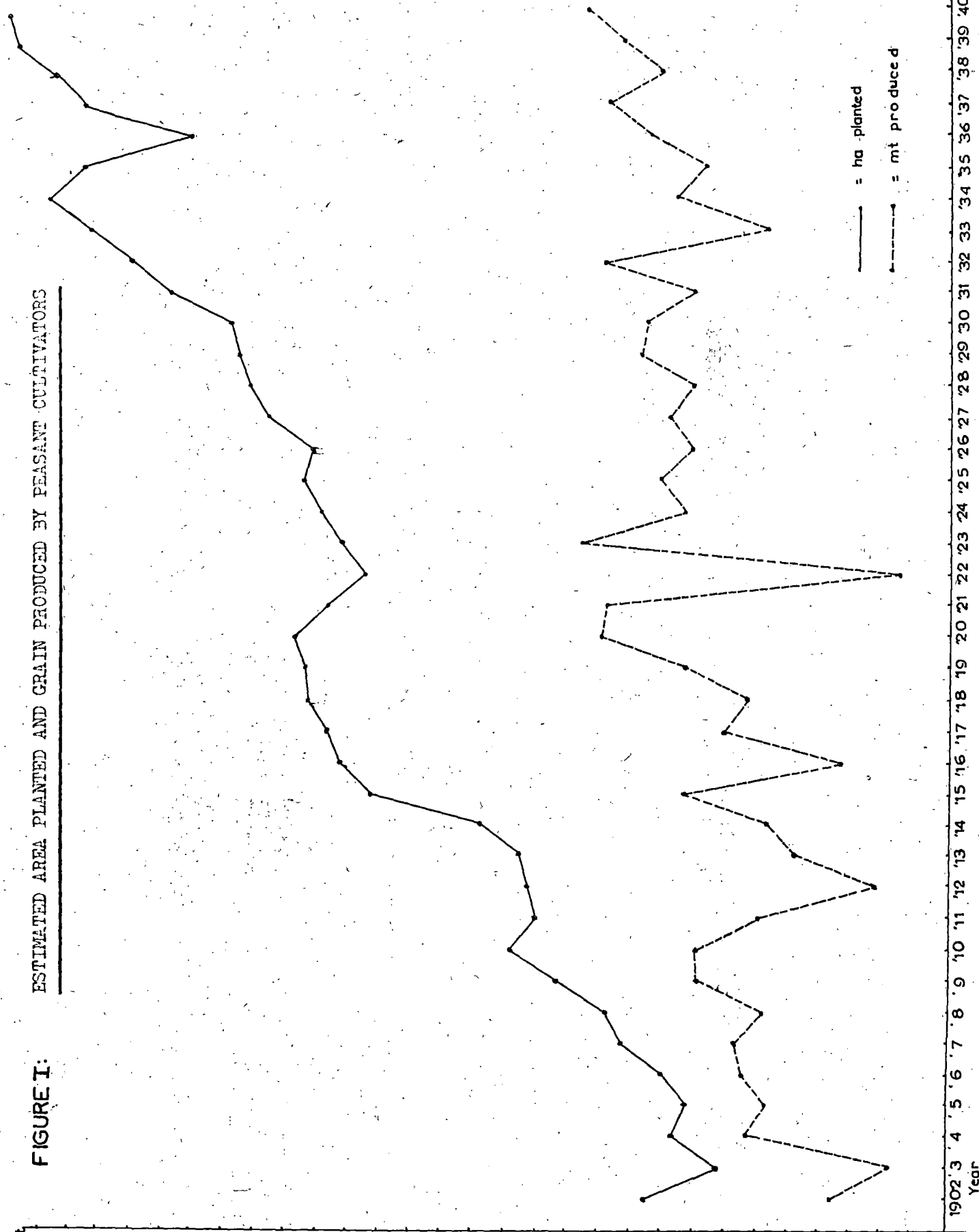
"open field" system. In the high and medium rainfall areas the tendency is to maize monoculture with small plots of vegetables, ground-nuts, beans and millet. The more advanced cultivators use cattle manure, simple rotations, contour ridging, proper spacing and in some case fertilizers and hybrid seed.

Peasant producers were for the most part situated far from markets and most of their surplus had to be marketed through traders. Until 1934 maize sales from the peasant sector were not controlled by any central authority and in the late twenties and early thirties most of their grain was sold on the lucrative internal market. The fall in world prices, just as the country began to produce significant surpluses for export, hit both the commercial and peasant farmers. The 1931 Maize Control Act resulted in minimum prices being placed on locally sold maize in controlled areas to try to offset the losses experienced on the export market. As peasants in these areas were not required to sell through the Board, they found a ready market amongst consumers who were not prepared to pay the Board price. In the more remote areas, with no direct access to consumers, the slump meant that some traders would only take the grain as barter for goods. The 1934 Maize Control <sup>the</sup> Amendment Act (see p.12) divided maize marketed through/Maize Control Board into two pools where each farmer was allocated a prescribed percentage in the higher priced local pool. Smaller commercial farmers were given favoured access to the local pool as compared with large-scale commercial producers, peasant farmers and traders. Peasant farmers were not forced as were commercial farmers to deliver exclusively to the Board. When submitting to the Board, however, they were given the same quota in the local pool as that allocated to large-scale commercial producers and all maize delivered by traders was allocated only to the lower priced export pool. This last provision was later amended to allow traders a 25% allocation in the more lucrative local pool.

The prices received by peasant farmers from the Board were <sup>therefore</sup> in line with large-scale commercial producers instead of the smaller-scale commercial farmers (Johnson p.197). Although in the absence of any form of maize control peasant producers might have received prices even lower than those guaranteed by the Board, the system was discriminatory and the world slump in prices generally discouraged surplus production and improved cultivation by peasant producers (Punt p.97). This effect is reflected in the estimates of area planted which declined sharply after 1934. In the late thirties, however, despite the disincentives, the contribution of peasant producers to the marketable surplus of grain increased and reached a peak in 1939 when 31% of the maize sold to the Grain Marketing Board was from the peasant sector (Fig. 2).



FIGURE I: ESTIMATED AREA PLANTED AND GRAIN PRODUCED BY PEASANT CULTIVATORS



SOURCE: Chief Native Commissioners' Annual Reports  
(original data extracted by M. Reid (undated))

Until 1910 commercial agricultural production in Zimbabwe was based mainly on the monoculture of maize. This crop still accounted for over 92% of land cultivated in 1915. By 1921 about 80% of the area planted was devoted to maize while tobacco, the next largest crop, occupied 3,28% of the area planted. Although there was a steady, if slow, increase in the area of crops other than maize grown, the Director of Agriculture felt that the main factor limiting such increase was the question of profitable outlets (Department of Agriculture, 1923).

The British South Africa Company, keen to increase the value of the land, actively encouraged research into, and the production of, crops for export. After the attainment of colonial status in 1923, the government continued these efforts and helped farmers to secure markets. These efforts were circumscribed by the high cost of transport to the ports, poor infrastructure, lack of capital and the high risks involved in producing untested crops under difficult conditions for uncertain markets.

Table 1 shows the areas planted to the principal crops grown (excluding fodder crops) for the period 1914 to 1940. Area planted has been chosen since this is a variable over which the farmer has direct control. Crop yields vary, not only with the area planted but also with weather, technology, disease and other exogenous variables.

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- 4) Historical data and information on crop production by commercial farmers, except where stated otherwise, are largely drawn from Weinmann's "Agricultural Research and Development in Southern Rhodesia" 1890 - 1923 and 1924 - 1950.

TABLE 1.

	Total Area planted to Summer Crops.	1) Maize	Wheat 2) Oats Barley	Tobacco	Cotton	Groundnuts and Sunflowers	Legumes	Pota
1914	n/a	65 264	3)	2 277	N/a	788		633
1915	74 234	67 589	682	554	N/a	1 946	1 470	711
1916	82 131	70 679	830	530	N/a	1 962	1 515	1055
1917	100 784	86 181	1 884	807	N/a	1 243	1 573	1 021
1918	93 061	80 274	2 032	985	N/a	1 927	1 149	648
1919	83 140	72 413	1 778	1 294	405	1 722	1 251	738
1920	85 429	72 206	2 080	2 244	N/a	1 395	2 236	841
1921		77 925	2 881	3 192	N/a	3 300	2 316	1 144
1922	92 270	78 566	N/a	3 645	55	3 642	3 112	1 474
1923	111 792	92 479	2 105	3 140	1 158	4 902	1 858	1 417
1924	116 081	98 312	1 684	2 833	1 597	3 634	1 127	1 569
1925	137 875	99 588	2 136	3 055	25 438	4 263	1 408	910
1926	143 618	99 746	2 213	5 326	26 745	5 196 (4)	1 325	1 288
1927	140 338	111 726	1 670	11 806	3 292	5 670	1 770	1 136
1928	157 314	124 135	1 692	18 499	542	8 295	2 860	1 005
1929	165 938	136 505	2 955	6 783	743	10 283	5 107	1 027
1930	169 156	133 059	3 442	3 918	2 501	13 971	3 963	1 136
1931	163 171	116 137	4 211	6 199	3 634	7 823	4 108	1 179
1932	156 028	106 546	6 010	9 744	1 411	9 018	3 158	1 127
1933	154 537	106 362	7 072	13 521	769	10 027	5 500	1 140
1934	161 083	104 642	6 985	16 745	1 298	9 704	4 609	1 142
1935	173 422	113 241	8 953	15 988	1 866	10 207	4 752	932
1936	173 589	112 571	9 693	16 033	811	8 748	4 317	1 203
1937	175 336	117 099	9 416	15 745	682	7 541	5 598	1 072
1938	181 358	117 499	7 735	19 076	525	9 698	6 465	1 416
1939	186 009	112 584	7 796	24 656	325	9 325	6 291	1 318
1940	181 982	105 907	8 686	24 801	411			

1) From 1917-maize grown for silage is included.

2) These are winter crops and are not included in the total area planted to summer crops.

3) Up to 1924 the data do not reflect areas planted to oats and barley.

4) From 1927 the area includes sunflower planted for silage and green manure.

5) From 1924 only legumes grown for seed production are included.

## MAIZE

Initially commercial farmers obtained the low-yielding but hardy type of flint maize seed from the peasant farmers. The land was worked by hoe and the seed broadcast in a similar cultivation pattern to that used by the peasant farmers. The first significant increases in maize yields came from the introduction of high-yielding imported seed. Very little fertilizer was used in the country until 1913 but by 1916 experiments showed that fertilizer applications were economic. Subsequently the increased use of fertilizer together with improved cultivation methods resulted in a rising trend in yields. The export demand for white maize was limited (since the yellow varieties were preferred in Europe for stock and poultry feed) but the local and South African markets favoured white maize and to keep the maize strains pure, the Maize Association opposed the production of yellow maize. The Maize Act of 1925 enabled the majority of farmers in any area to prescribe the type of maize grown (Smith p.149).

Detailed statistics of agricultural production were not systematically collected until 1913. Available data indicate, however, that in the Salisbury and Bulawayo districts the area planted to maize increased from 1200 ha. in 1900 to approximately 3200 ha. in 1904. Total maize production in Zimbabwe in 1904 was estimated at 4156 tonnes. By 1909 maize production had expanded to the extent that 1040 tonnes of maize could be exported, 907 tonnes of which were sent by the Farmers' Co-operative Society to the United Kingdom (Weinmann 1972 p.21).

In order to encourage the export of maize, the Beira Junction Railway Company (a wholly-owned subsidiary of the B.S.A. Co.) expanded the port facilities at Beira and undertook to sell maize in England. Producers were paid from any point on the line of rail the full market price received less a marketing margin of \$2,75 per tonne. Half the current value was advanced to producers when the maize was accepted, with the proviso that the maize was weevil-free (an early attempt at quality control) (Smith p.143). By 1911, 35 668 tonnes were produced and 2121 tonnes of maize and 864 tonnes of meal were exported. The 1912 harvest was very poor causing a sharp increase in price and exports fell sharply in that year but recovered in 1913.

Systematic grading commenced in 1913 to improve the standard of exported maize and in 1914, 18 335 tonnes of maize and 963 tonnes of meal were exported. Exports of maize were vital to the industry as only a third of the crop was locally consumed and, although there was

some demand from neighbouring territories, most of the surplus had to find markets in Europe (Smith p.154/155). The area planted to maize continued to expand until 1929 and although output fluctuated markedly with weather, average yields did show a small increase. A poor harvest in 1916 resulted in a dramatic increase in price from an average in 1915 of \$8,60 p.m.t. to \$12,02 in 1916. Thereafter although fluctuating slightly the average price rose to a peak of \$14,33 in 1920. In 1921 prices fell sharply to \$8,05 in response to increased supply and a fall off in demand from overseas markets. The very poor harvest in 1922, however, resulted in a recovery in the price and until 1928 prices tended to fluctuate inversely with maize production (Fig.2).

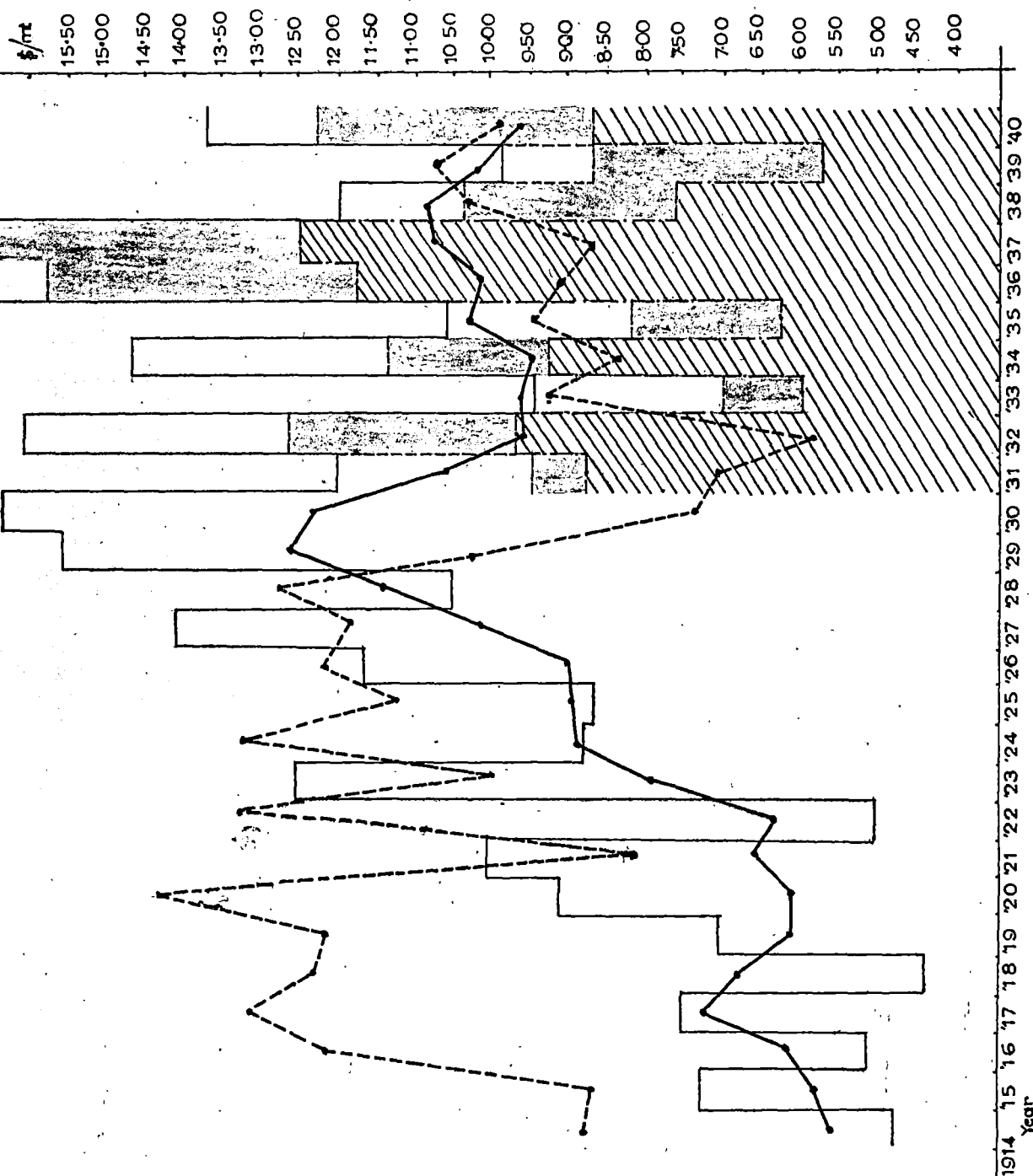
With the onset of the depression, world market prices for maize fell dramatically and in 1930, 1931 and 1932 the prices paid to producers were said to be below estimated costs of production (Smith p.159). Although the area planted to maize fell, the drop was not as dramatic as may have been expected with the low producer prices. Tobacco prices had plummeted in 1928 (Fig. 3) and despite some increases in the area planted to cotton, groundnuts, sunflowers and other crops, many farmers lacked realistic alternatives. It can only be assumed that although very low, the maize price covered variable costs. The industry was given some support by government who agreed to pay a bounty of just over a dollar on every tonne of maize and maize meal exported and interest-free loans totalling \$104 582 were made to 260 maize growers in 1930.

With the maize industry so seriously affected by the slump in world prices, the farming community, which was becoming increasingly important politically, sought methods to manipulate the local market in an effort to keep the agricultural industry viable. A Maize Control Board with sole control over maize marketing in specified areas was set up under the Maize Control Act of 1931. Under the Act, commercial farmers and traders in Mashonaland and other specified areas were required to sell directly to the Board. Local demand was to be met at a controlled price set higher than the free market price but which "compared favourably with the normal local price" (Dept. of Agriculture, 1931). The balance was then exported at the prevailing world price which was very low. The overall average price received for the crop

# MAIZE - AREA PLANTED, PRODUCTION AND AVERAGE PRICE 1914-1940 SALES TO THE MAIZE CONTROL BOARD 1931-1940

FIGURE II

- / = ave. price per tonne
- / = area planted (commercial)
- = m.t. produced (commercial)
- - - = total sales to MCB
- = maize sold by peasant farmers
- /// = maize sold by commercial farmers



SOURCES: Smith, Annual Report of the Maize Control Board, Official Year Books, Weinmann (1972 and 1975).

by the Board was then paid out to those farmers within its jurisdiction. The system was not successful since the price support scheme was sabotaged by consumers in controlled areas who were able to buy more cheaply from peasant producers and from the exempted areas. Commercial farmers in the controlled areas complained that:

"During the past five or six years the average quantity of maize sold into consumption in the Colony has been in the neighbourhood of 700 000 bags a year. It is possible that consumption has fallen, but even so, it can hardly be contended that the 92 000 bags sold by the Board in the local market represents seven months' consumption. The truth would seem to be that the exempted maize, which is mainly native-grown, is taking the larger part of the market." (Editorial 1933 p.87)

After representations by the commercial farmers concerned and discussions with the commercial farmers from the exempted areas, the Maize Control Amendment Act was introduced in 1934.<sup>5)</sup> This act extended the jurisdiction of the Board over the entire country. As outlined earlier, a two pool system was established with the prices paid for maize in the local pool being over 40% above the world prices prevailing in the export pool (Johnson p.197). Smaller growers were given quotas of up to 80% in the higher priced local pool, whilst larger growers were allocated only 20%. This policy was intended to offer protection to the smaller commercial farmers in the marginal areas. In good harvest years the average price received by farmers tended downwards towards export realisations but average prices increased in poor years when the surplus over local requirements was small.

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5) See Jacklin, 1934.

## TOBACCO

Tobacco, which was to play a major role in the development of Zimbabwe, is known to have been sporadically cultivated throughout the country for some four centuries. The first recorded commercially grown crop was produced by a farmer outside Umtali who sold 26 kg. of tobacco at 99 cents per kg. in 1895 (Clements and Harben p.48). Tobacco continued to be grown experimentally until 1900 when, after the completion of the rail links, the British South Africa Company took steps to promote the tobacco industry. By 1904 there were 100 farmers growing 66 840 kg. of tobacco at prices ranging from 11 to 73 cents per kg. (Haviland p.366 and Weinmann 1972 p.46). Some farmers and progressive businessmen established small cigarette and pipe tobacco factories in 1903. The first tobacco warehouse was opened in 1906 and a second in Bulawayo in 1908.

The tobacco industry faced several severe setbacks in its expansion up to 1940. In 1910, the industry, with efficient farmers able to make around \$123 per hectare (Clements & Harben p.64), geared itself for a boom. The Tobacco Planters' Association was founded and the first auction sales established. Local demand was negligible and most of the Zimbabwe crop was exported to South Africa with a small proportion reimported after processing. The United Kingdom at that time relied almost entirely on America for tobacco. In 1910 54 432 kg. were sold by auction at an average price of 26 c/kg and in 1911, 59 970 kg were sold at 33 c/kg. These prices were well above world market prices and so encouraged production that output began to outstrip the demand from the South African outlets. In 1913 the price dropped to 20 cents a kilo and instead of limiting production to match demand, growers expanded production to offset the smaller return (Clements & Harben p.72-76). This resulted in massive overproduction in 1914 with output reaching 1 388 800 kg. Disaster struck the industry in that year when, as a result of a dispute between tobacco buyers and the Tobacco Company, the auctions failed to take place (Weimann 1972 p.48). A proportion of the crop was subsequently sold in the United Kingdom at very low prices. Widespread bankruptcy resulted and in 1915 only 193 424 kg of tobacco were produced, the area planted having fallen from 2 277 ha. to 554 ha. Prices began to rise again after 1915. With the influx of the World War I veterans the area planted in 1920 was back up to the 1914 level and by 1922 had reached 2 645 ha. Yields per hectare had declined as a result both of less favourable weather and the increase in inexperienced growers. Total output in 1922 was 1 306 407 kgs.



In the early years Manicaland and Matebeleland were responsible for a significant proportion of tobacco produced but by the early twenties almost all the virginia tobacco was grown in the central Mashonaland districts. Bulawayo producers continued to grow Turkish tobacco for some years and were still producing 24% of the national total in 1923.

From the failure of the auction system until 1925, first the Planters' Co-operative and then the Rhodesian Tobacco Warehouse and Export Company handled most of the output, entering three-year contracts with South African buyers. Prices were fixed according to grades. The leaf was classified by the buyers and there was widespread dissatisfaction amongst growers who accused buyers of manipulating the grades to hold prices low.

In 1924, in an effort both to encourage British interest in Zimbabwean tobacco and to encourage new immigrants, Zimbabwean tobacco was represented at the Empire Exhibition at Wembley. The exhibit created a favourable impression and attractive prices were quoted for commercial shipments of similar quality. With the threatened competition from the British markets, the South African buyers increased their prices but the contracts with the South African buyers were not renewed in 1925. The South Africans, however, continued to buy a substantial proportion of Zimbabwe's tobacco (Brown 1929 p.774).

In 1926, as a result of the increase in the rate of <sup>the</sup> Imperial Preference,<sup>6)</sup> exports to England increased by seventy-five percent and totalled 642 905 kg. In 1927, 3 701 698 kg were exported to England. The combined effects of the encouraging market situation, an influx of new settlers, unregulated production and clement weather resulted in a record crop of 11 million kilogrammes in 1928. The number of farmers growing tobacco had increased from 189 in 1925 to 987 in 1928. The demand for Zimbabwean tobacco in the United Kingdom had been disastrously overestimated and the bulk of the crop sent to England in 1928 proved to be unsaleable resulting in a drop of 19 cents in the average price paid to farmers. The then Southern Rhodesian government was forced to intervene in the market at a cost of over a million dollars (one-fifth of its total annual revenue) (Clements & Harben p.104).

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6) A British custom rebate for imports from the colonies.

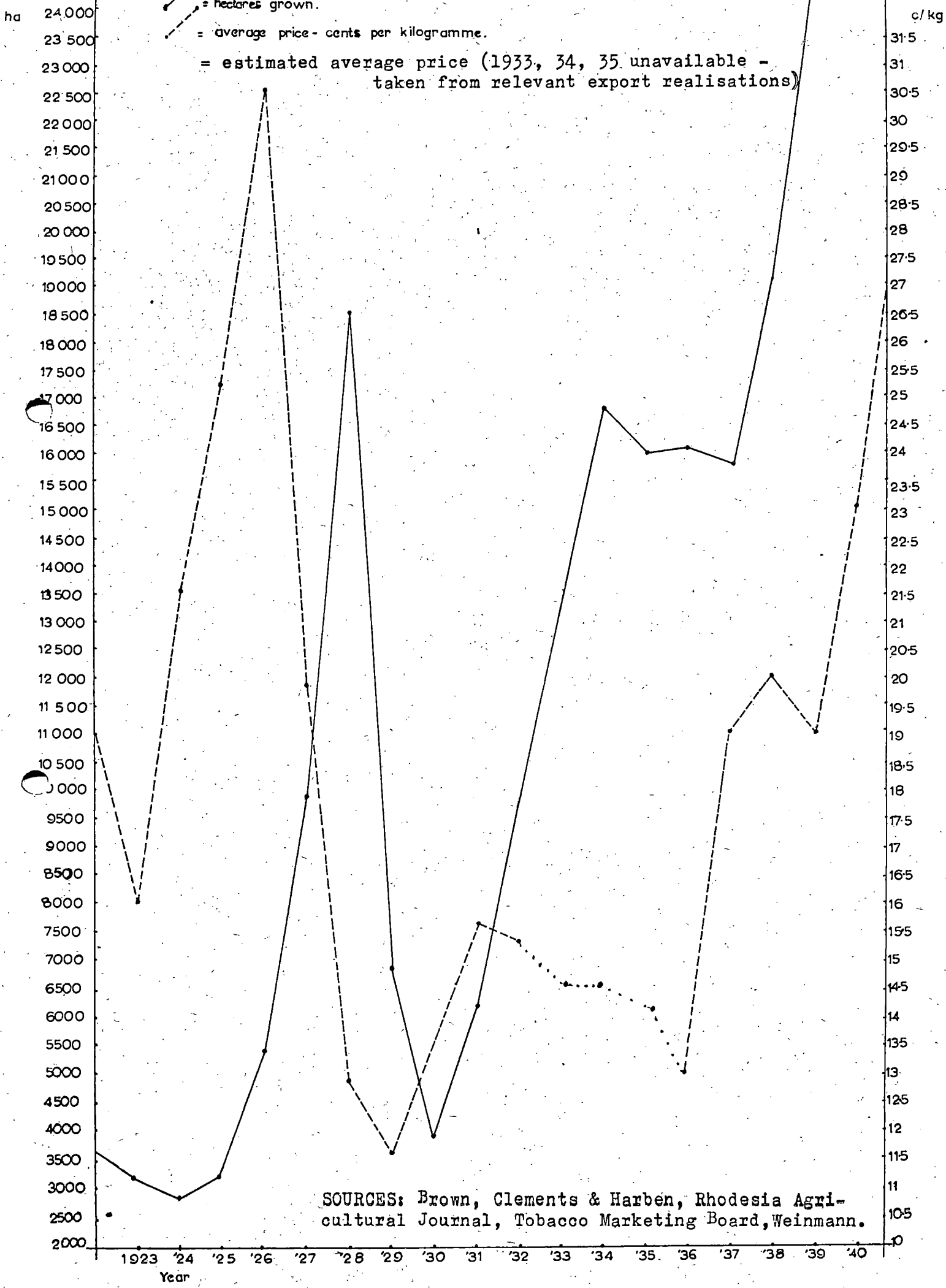
Immediately after the collapse of tobacco, maize prices fell as a result of the world depression. With few alternative crops and the prospect of the Imperial Preference being guaranteed by Britain for ten years, tobacco production picked up in 1931. By 1934 a new record of 11 837 975 kg of tobacco was produced. This again created a surplus. To avoid repeating the 1928 disaster, twenty percent of each grower's crop was removed from the open market and placed in a reserve pool which was later bought very cheaply by a merchant company. Although the company made substantial profits at the expense of growers, it did open up new markets on the Continent.

In 1933 the Rhodesia Tobacco Association was formed. All growers were required by law to pay a levy to be used for the development of the industry and so became automatic members of the Association. In 1934, on the recommendation of the Association, a tobacco production quota scheme was introduced to control further expansion.

In 1936 the Tobacco Marketing Act was introduced to govern the marketing of virginia tobacco. The Act established compulsory selling by auction although individual growers could still, with permission from the Marketing Board, sell tobacco on consignment to England. Whereas attempts at auction selling in the past had failed for lack of competition, this was no longer the case. Both buyers and sellers were represented on the Tobacco Marketing Board which was set up to organise and control the auctions. Two auction floors were established and all the tobacco produced in 1936 was sold, although at the very low average price of 13 c/kg. Thereafter prices rose steadily and production quotas were lifted, resulting in a steady expansion of area planted. Yields and quality remained generally low prior to 1940.

The establishment of the Tobacco Research Board in 1938, jointly funded by the government and growers, was later to prove a worthwhile investment - yields per hectare increased threefold in the period 1940 to 1980 and quality became a major feature of the industry.

On Figure 3 the area planted and prices paid to growers have been represented. Area planted appears generally (excluding 1928) to have followed the price paid in the previous season. In the early thirties production increased more than would appear warranted by the relatively small increase in prices paid. Although neither price nor cross price elasticities of supply have yet been measured, it is assumed here that the undue increase in tobacco planted in these years was caused by the very low maize prices.



Wheat was initially grown both as a summer and a winter crop. The summer varieties suffered from rust (*Puccinia* spp.) and the winter crop had to be grown under irrigation. Some farmers grew dryland winter wheat using moisture-retaining soils in the vleis but the yields were low. With the unreliability of outside sources of supply and the United Kingdom demand for wheat high, the Southern Rhodesia Government encouraged farmers to grow wheat by subsidising purchased inputs and rail rates. Wheat production rose from 566 tonnes in 1915 to 2 540 in 1921 although it had fallen back to 1031 tonnes in 1923 when wheat was superseded as the country's third most important crop by groundnuts.

Irrigated wheat yields did not repay the capital investment necessary to expand production. On the whole the wheat produced had a low protein content and poor baking qualities. The country remained a net importer of wheat throughout the period covered by this paper, although small quantities of grain and larger quantities of flour were exported.<sup>8)</sup> The cost of imported wheat stimulated the government to encourage wheat production further. In 1928 a customs rebate was given to millers using twenty percent of the local wheat and in 1932 a guaranteed price was introduced for wheat of a "fair quality". These measures, combined with the very poor returns to maize and tobacco at the time, brought about an increase in area planted to wheat reaching a peak of 9 017 ha. in 1936. Planting then stabilised at about 7 000 ha. for the next ten years.

Barley and oats were grown mainly in winter as fodder crops. In 1923 only 109 ha. of barley and 296 ha. of oats were grown. Despite a forty percent increase in the area planted to these crops in the depression years they remained minor crops throughout the period. A limited quantity of the barley was used for malting purposes. Although small quantities of rice were grown in the vleis, particularly by peasant cultivators, the plantings were insignificant.

Sorghum, rupoko and other millets were, and have continued to be, grown principally by peasant farmers. Small areas of sorghum were

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7) Excluding maize.

8) For a breakdown of wheat imports and exports from 1924 to 1950 see Weinmann 1975, Table 7).

planted by commercial farmers. Although these crops are more drought resistant than maize, the unfavourable price received tended to discourage production.

#### COTTON.

Cotton production, which in modern Zimbabwe contributes significantly to agricultural output, has had an erratic history. Cotton, found wild in the Zambezi valley, was used by the local population to make strings and sheets. Samples of this cotton sent to England received favourable reports (Weinmann 1972 p.13) and, as a result, the British South Africa Company initiated experiments into cotton production in the early eighteen nineties. These trials were a commercial failure although cotton growing continued on a small scale. Interest in cotton was revived only in 1923 with the evolution of better transport and handling facilities and favourable cotton prices. The area planted to cotton went from about 55 ha. in 1922 to 1 597 ha. in 1924, yielding 767 tonnes at 29 c/kg (Brown 1924).

An unprecedented 25 000 hectares were planted to cotton in each of the following two years but the area planted plummeted in the next three years to a low of 540 ha. in 1928. The drop was caused by unfavourable prices combined with very poor yields (as a result of jassid attack, other insect pests and fungal diseases) and the increasing profitability of tobacco. With the dramatic fall in the prices of tobacco and maize, the area planted to cotton increased again in 1930 reaching 3 634 ha. in 1931. The area grown continued to fluctuate in the next decade, probably in response both to cotton price and the changing fortunes of tobacco and maize. No detailed analysis has been possible as reliable data on cotton prices have not been found. Until the introduction of modern insecticides in the late fifties cotton remained a high risk crop in spite of the introduction of higher yielding, more jassid resistant varieties in the thirties. Peasant farmers were encouraged to grow cotton but their production remained insignificant until the late forties.

#### OILSEEDS

Groundnuts were cultivated almost exclusively for subsistence until the introduction of higher-yielding varieties in 1910. When, in 1915, a small factory producing oil, soap and oil cake was erected, commercial production further increased and by 1923, 2 200 ha. were grown producing 1 158 tonnes of nuts. The area planted to groundnuts averaged 2 600 ha. per annum between 1924 and 1940, with a peak of 4000 ha. between 1929 and 1932.

Sunflowers are grown for seed, fodder and as a green manure crop.

The area planted for seed increased substantially after the First World War but fluctuated from year to year. Over 2 600 ha. were grown in the years 1922, 1930, 1934, 1935, 1939 and 1940.

Flax production was found to be unprofitable and linseed was grown only on a small scale for stockfeed. Although castor oil and sesame were found growing wild, low yields and harvesting problems made them unattractive for the commercial sector.

#### LEGUMES. 9) AND ROOT CROPS

Edible beans grown for both seed and green manure averaged approximately 1 000 ha. per annum from 1914 to 1923 and 1200 ha. from 1924 to 1940. Velvet beans grown for fodder increased in 1923 and continued to increase steadily although production as a green manure crop fell off after 1930, only picking up again in 1936. Velvet beans grown for seed doubled in 1935 and continued to increase steadily thereafter.

Cowpeas and sun hemp also gained in importance with 5 686 ha. planted to cowpeas and 21,565 ha. to sun hemp in 1940. The area planted to sun hemp as a green manure crop increased dramatically in 1930 and continued to increase steadily until 1940. It also gained in importance for both seed and fodder.

In the early British South Africa Company reports potatoes were reported to have been growing well as early as 1892 and in 1900, 453 ha. were known to have been planted to potatoes. By 1911 total production had risen to 2 850 tonnes. Potatoes were grown both as a summer and a winter crop and production increased after World War I reaching almost 4 000 tonnes from 1 500 ha. in 1923. Average yields increased but the area planted to potatoes remained fairly static varying between 900 and 1400 ha. until 1940. Sweet potatoes, mangels, pumpkins and cattle melons, although cultivated, remained relatively insignificant as commercial crops.

#### OTHER CROPS

Commercial agriculture in Zimbabwe is generally characterised by individual owner-operated land holdings rather than large-scale corporate plantations but sugar, tea and citrus have been principally developed on such plantations.

Sugarcane was first grown by a commercial farmer in the Wankie district on a small scale where it was locally crushed and sold.

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9) Groundnuts have been included with oilseeds.

The farmer, having obtained financial backing from sugar industrialists in Natal, then extended production and by 1930 had just over a hundred hectares planted to sugarcane. A severe frost in 1931 destroyed half the cane and the plantation was abandoned. Triangle Sugar Estates Ltd., was formed in 1934 with a capital of \$80 000. The Company was later to be bought by the government for experimental purposes and subsequently sold to a South African syndicate. Sugar-cane grown off the irrigation scheme established by MacDougall in the southern Lowveld, was first milled in 1937 producing ten tonnes of sugar.

Tea was initially grown under irrigation by two retired Indian tea planters who had established a small tea factory and by 1930 were growing 50 ha. They later formed a company and expanded production. Tea remained relatively insignificant and by 1940 there were still only 200 ha. grown.

Coffee was grown by a few individuals on a small scale with very little change in production between 1930 and 1940 when an average of 42 ha. were grown.

Citrus culture was pioneered by the British South Africa Company on three large estates in Mazoe, Umtali and Sinoia. By 1927 there were almost 100 000 orange trees established and approximately 4 700 tonnes were exported. Although some individual farmers planted small areas to citrus, production remained relatively static and in 1940 just over 6 000 tonnes were exported and 1 500 tonnes sold locally.

Deciduous fruit was grown in the Eastern Districts and in 1935 a Fruit Grower's Co-operative was established. Fruit production remained relatively insignificant and was primarily directed at the local market. Tropical fruit growing also remained very localised in the period under review and in 1937 there were 132 922 deciduous fruit trees and 44 961 tropical fruit trees (citrus excluded) planted for commercial production. There were some smallholdings providing vegetables for sale on the urban markets but until well into the sixties their production was to remain commercially insignificant.

#### CROP PRODUCTION IN THE ECONOMY : 1890 - 1940.

Mining, and in particular gold, despite the disappointingly small deposits discovered, was the mainstay of the money economy in Zimbabwe in the period under review. It contributed most to both national output and exports. Agriculture, however, played a vital role in feeding the nation and was an important contributor to national income, balance of payments and employment.

Most of Zimbabwe's land is best suited to cattle ranching and from 1925 to 1940, 42% of agricultural output came from livestock and dairy production. There was a gradual increase in the relative importance of crop production as the infrastructure and technology improved.

TABLE II

Year	Estimated Net National Product.	Gross Value Mining Output.	Gross Value Agricultural Output.	Gross Value Crop Production
	'000 \$	'000 \$	'000 \$	'000\$
1925	20 418	8 268	3 960	1 940
1926	24 084	8 202	5 520	3 040
1927	27 768	8 476	6 780	4 280
1928	28 018	8 896	6 660	3 660
1929	27 956	9 744	6 300	3 180
1930	26 196	9 036	5 940	2 940
1931	17 592	6 436	4 280	2 540
1932	19 376	7 696	4 820	3 260
1933	22 288	9 880	4 560	2 500
1934	26 552	11 376	6 600	4 220
1935	29 098	12 512	5 720	3 400
1936	33 498	14 278	6 540	3 980
1937	38 494	14 966	7 300	4 360
1938	41 392	15 390	7 540	4 560
1939	43 072	16 282	7 120	4 160
1940	51 286	18 332	9 780	6 260

Sources: Barber p.104 and 132  
Official Yearbook 1938  
Department of Agriculture - Five Year Plan.

The estimates of national income prepared by Frankel and Herzfeld (Barber) in Table II do not take account of the value of agricultural products sold by the peasant sector nor do they make any provision for subsistence production. The calculations actually refer to estimates of the net value added of commercial agriculture, mining, manufacturing and services. Table II sets out these estimations along with the gross value of the mining and commercial agricultural sectors. A very rough approximation of the comparative contribution of the sectors can be obtained by deducting 22% from the gross value of agricultural output.



commercial agriculture contributed 44%. By 1940 the mining sector share had dropped to 25% whilst commercial agricultural output remained constant at 15%. All the data and estimates used are crude but are useful in indicating trends.

During the years 1923 to 1932 crop production accounted for approximately 25% of total exports. Tobacco and maize together accounted for 18% of total exports in 1928 and 13% in 1938 (Phillips et.al. p.11).

TABLE III - EXPORTS 1923 - 1940

Year.	Total Value (a) of Merchandise Exported \$	Value of (b) Crops Exported \$	Value of (c.) Tobacco Exported \$
1923	9 832 242	2 059 361	372 204
1924	10 240 116	2 354 320	552 894
1925	9 518 838	1 926 804	296 384
1926	10 889 804	3 049 082	657 812
1927	12 600 992	4 286 234	2 507 262
1928	13 152 058	3 648 714	1 675 042
1929	13 296 600	3 177 122	939 202
1930	11 267 672	2 944 994	611 562
1931	8 873 462	2 098 588	749 088
1932	8 794 410	2 426 948	1 096 396
1933	9 271 306	n/a	893 890
1934	11 315 964	n/a	1 530 566
1935	12 013 102	n/a	1 303 152
1936	14 063 056	n/a	1 304 308
1937	21 409 358 d)	n/a	1 868 408
1938	21 148 294	n/a	2 521 824
1939	20 336 304	n/a	2 024 780
1940	26 798 714	n/a	3 945 720

(a) Taken from Official Year Book I, II and III IV.

(b) Brown p.556

(c) Weinmann Table 10 - these figures, taken from Official Year Book IV, are greater, by just over one million dollars between 1923 and 1930, than those given by Brown. The final two years given in Brown's article, 1931 and 1932, are identical. The sources for Brown's tables were not shown.

d) From 1937 gold was valued at current price, not standard value.

10) These percentages represent an average of the deductions made in the five years, 1935-40, when Frankel and Herzfeld's calculations of the net value of mineral and agricultural output (Dept. of Agriculture, undated, Five Year Plan) are compared with the gross values given in the Official Year Books.

Table III gives a breakdown of available data and shows the increasing importance of tobacco to Zimbabwe's balance of payments. It was only after World War II, However, that tobacco exports were to expand so rapidly as to become Zimbabwe's single most important export.

Agriculture has played an increasingly important part in the employment of labour. In the early years before the man-land ratio increased, the indigenous population preferred to farm their own land and the labour supply was supplemented by workers brought in from neighbouring territories. In 1921 only 36% of the total labour force were indigenous and in 1936, 57% of the agricultural labour force were aliens.

TABLE IV : EMPLOYMENT

YEAR	POPULATION		TOTAL EMPLOYED	EMPLOYED IN AGRICULTURE.
	BLACK	WHITE		
1921	862 319	33 620	162 092	62 148
1931	1 055 000	50 124	202 441	71 575
1936	1 245 000	55 570	278 874	87 214
1941	1 399 000	69 330	417 795	106 347

Sources: Official Yearbooks III and IV.

Weinmann 1975 p.195.

In 1911, the agricultural industry employed only 16% of the total labour force (Official YearBook I) but were employing 40% by 1921 and 50% in 1927 (Official YearBook II). Reference is made by the Official Year Books to the effect on employment shown up by any curtailment in agricultural activity and in 1930 it was stated that the fall in employment in 1928 was "mainly owing to the slump in the tobacco industry" (Official Yearbook II p.737).

In the period under review crop production expanded gradually but erratically as can be seen on Table II, with the gross value of crop production in 1927 higher than in 1939 but the five-year average, 1936 - 40, was 27% higher than the period 1926 - 30. By 1940 centralised commercial marketing facilities had been instituted for tobacco and maize, the farmers were organised and sophisticated research facilities had been established so that the industry was in a strong position to take advantage of the boom which was to follow World War II.

Cont...

The period saw the initiation of many of the institutions which characterise Zimbabwe in the 1980's. Arable farming was to become increasingly dominated by maize and tobacco (although this was modified during the UDI era). Producers of both of these crops developed marketing arrangements to remove some of the uncertainty of production, particularly with respect to price. The divergence between the peasant and commercial sections, although apparent soon after European settlement, had become of major significance by 1940. The commercial farmers, with increasing political influence, were in a position to evolve policies which favoured the development of their sector. Ownership of land had become racially segregated and the peasant sector became progressively disadvantaged as the period evolved. While there were definite and well-intentioned attempts to improve the welfare of the peasant producer these were largely offset by the scarcity of capital, trained manpower, infrastructure and research facilities which tended to be concentrated in the commercial sector.

By 1940, Zimbabwe had become an agricultural trading nation, with tobacco and maize being the main commodities exported. These were largely produced by the commercial sector and the foreign exchange earned by agricultural trade was to become of major importance to the nation's economy. These facts were to mean, in future years, increasingly favourable treatment for the commercial sector, with peasant farming failing to move significantly beyond subsistence production.

Peasant producers showed themselves competent and willing to use new technology when it suited their needs. The rapid uptake of the animal drawn plough, which relieved the major constraint of labour, well illustrates this point. Market incentives also could be shown to have a significant effect on peasant production. The development of Zimbabwe, with scarce capital resources and limited mineral potential, required an export-orientated agriculture and the first 40 years of the twentieth century were difficult for a young country attempting to establish itself in world agricultural markets. In easier times, the peasant sector might have developed more effectively in spite of its disadvantaged position. The increasing need of the country for foreign exchange and large marketable surpluses to develop secondary industries, resulted in the almost inevitable policies which developed commercial agriculture whilst the peasant sector, where investment returns were slower, tended to be ignored. These policies, once initiated, quickly became part of the

structure of Zimbabwean agriculture and were to continue, unaltered in substance, apart from the introduction of measures for soil conservation, until 1980. The foundation for the social, ecological and agricultural problems of the peasant farming areas was firmly laid by 1940.

A further pattern that was established by the end of the period was development of single commodity pricing institutions. Pricing institutions for maize and tobacco evolved largely from the experience of low crop prices during the world depression in the 1930's. Local demand for both crops was limited and export potential was uncertain. Maize was vital to the economy in terms of both agricultural output and food security and government considered it necessary to support the industry. With the introduction of statutory prices for locally sold maize, the precedent for government controlled pricing of certain commodities was established. Tobacco prices, however, were left to market forces although the centralised auction system was mandatory. While there was some interaction between the areas of tobacco and maize planted, and the prices received for these crops, with tobacco accounting for less than 5% of the area planted, a pattern was not obvious. Hence pricing institutions for the two crops were established independently and the maize prices were set largely in isolation from the overall picture of farm prices. This system, again, was to survive unaltered in substance, until 1980 making the evolution of a comprehensive pricing policy for agriculture a progressively difficult task.

By 1940, therefore, Zimbabwe had evolved agricultural policies and institutions which were to set the pattern for the next 40 years. The reasons for the development of these policies and institutions can be found in the market and social conditions outlined in this paper.

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